



802.11g Wireless Broadband Router Model # AR335W User's Manual

Ver. 1A

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1. Introduction

Congratulations on your purchase of this 802.11g Wireless Broadband Router. This product is specifically designed for Small Office and Home Office needs. It provides a complete SOHO solution for Internet surfing and is easy to configure and operate even for non-technical users. Instructions for installing and configuring this product can be found in this manual. Before you install and use this product, please read this manual carefully for proper operation of this product.

Basic Functions

Compliant to IEEE 802.11g and 802.11b

Supports up to 54Mbps* data rate

NAT Routing

Connects multiple computers with wire or wirelessly to a broadband (cable or DSL) modem to surf the Internet.

Auto-Sensing Ethernet Switch

Equipped with a 4-port auto-sensing Ethernet switch.

Firewall

All unwanted packets from outside intruders are blocked to protect your Intranet.

• DHCP Server Supported

All of the networked computers can retrieve TCP/IP settings automatically from this product.

Web-Based Configuration

Configurable through any networked computer's web browser using Netscape or Internet Explorer.

Security Functions

• VPN Pass-Through

Support VPN pass-through.

• SPI Mode Supported

When SPI Mode is enabled, the router will check every incoming packet to determine if the packet is valid.

Wireless Security

WEP, WPA, WPA2, and Wireless MAC Filter

Advanced Functions

- Multiple administrators
- Detailed logging
- UPNP (Universal Plug-and-Play) Supported
- WMM
- DDNS

2. Connecting the Router

Note: Prior to connecting the router, be sure to power off your computer, DSL/Cable modem, and the router. You should setup the router with a wired connection first before attempting to setup any wireless connection.

Step 1 Connect one end of a network cable to the **WAN** port of the router and connect the other end of the cable to the DSL/Cable modem.

Step 2 With another network cable, connect one end of the cable to your computer's network card and connect the other end to one of the **LAN (Ethernet)** ports of the router.

Step 3 Power on the DSL/Cable modem and wait for the lights on the modem to settle down.

Step 4 Power on the router by connecting one end of the supplied power adapter to the power jack of the router and connecting the other end to an electrical outlet.

Step 5 Power on your computer.

Step 6 Make sure the **WAN**, **WLAN**, and the **LAN** port that the computer is connected to are lit. If not, try the above steps again.



3. Verifying Connection to the Router

Step 1 Go to **Start**, **Run**, type **command** (for Windows 95/98/ME) or **cmd** (for Windows 2000/XP) and click **OK**. You will see the command prompt as below.

Step 2 Type **ping 192.168.1.1** and press **Enter**. You should get four reply responses back.

```
Microsoft Windows XP [Uersion 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\Owner\ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

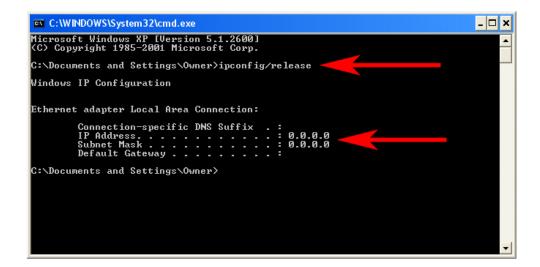
Reply from 192.168.1.1: bytes=32 time(1ms TTL=255
Reply from 192.168.1.1: bytes=32 time(1ms TTL=255
Reply from 192.168.1.1: bytes=32 time(1ms TTL=255
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255
Reply from 192.168.1.1: bytes=32 time=1ms TTL=255

Ping statistics for 192.168.1.1:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms

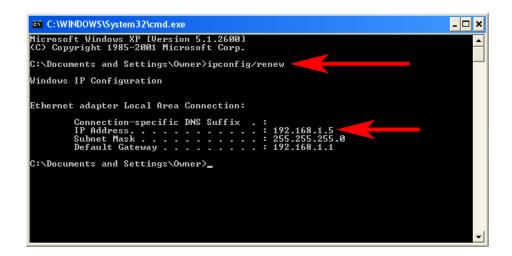
C:\Documents and Settings\Owner\_
```

Step 3 If you get **Request timed out**, or **Destination host unreachable**, double-check the network cable connection between the computer and the router and try **Step 2** again. If you still encounter problem, go to the next step; otherwise proceed to **Section 4**, **Configuring the Router**.

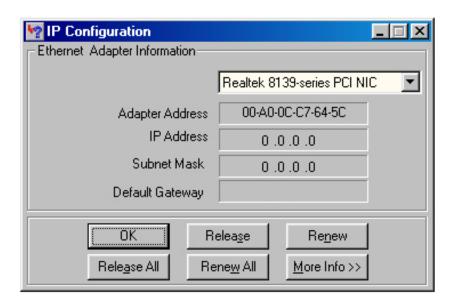
Step 4 For Windows 2000/XP, type **ipconfig/release** and press **Enter**.



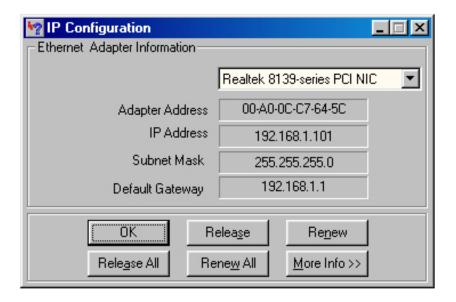
Step 5 Type **ipconfig/renew** and press **Enter**. You should get an IP address of **192.168.1.x** (where **x** is a number between 2 - 254). Proceed to **Section 4**, **Configure the Router**. If you don't get an IP address, reset the router by holding in the reset button on the back of the router for 10 seconds while it is ON and try **ipconfig/renew** again.



- Step 6 For Windows 95/98/ME go to Start, Run, type winipcfg and click OK.
- **Step 7** Select your network card from the drop-down menu and click **Release**.

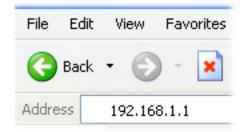


Step 8 After your IP address is released, click **Renew**. You should get an IP address of **192.168.1.x** (where **x** is a number between 2 - 254). If you don't get an IP address, reset the router by holding in the reset button on the back of the router for 10 seconds while it is ON and try **Renew** again.



4. Configuring the Router

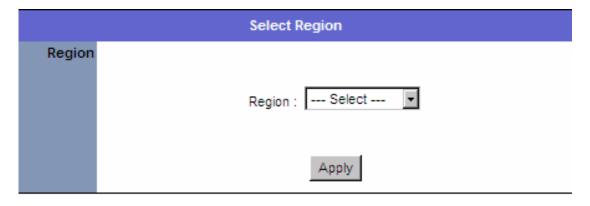
Step 1 Open the web browser and type **192.168.1.1** in the URL Address field and press **Enter**.



Step 2 Enter admin for both the username and password fields and click Login.



Step 3 Select the proper region, **North America** or **South America**, and click **Apply**.



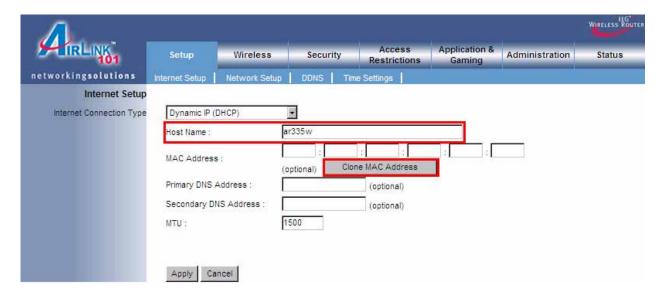
Warning: This device requires that the user or installer properly selects the current region of operation before using this device. This device will automatically limit the allowable channels determined by the current region of operation.

Incorrectly selecting the current region of operation may result in illegal operation and may cause harmful interference to other systems. The user is obligated to ensure the device is operating according to the channel limitations, indoor/outdoor restrictions and license requirements for the current country of operation.

Cable Modem

For most cable modem users, you should be able to connect to the Internet without any configuration. If your ISP has provided you with a host name, enter it in the optional **Host Name** field.

If your ISP requires a registered MAC Address, click on the **Clone MAC Address** button. Click **Apply** and **OK** to save the settings.

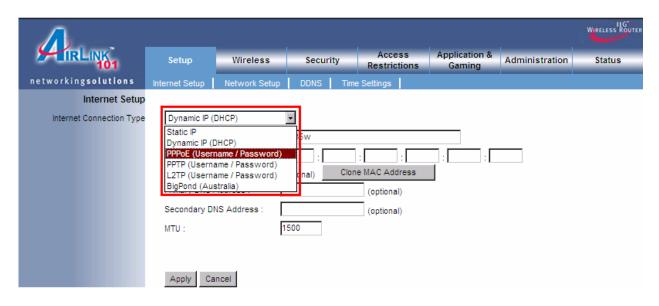


If you have trouble connecting to the Internet, please refer to the **Troubleshooting** section at the end of this guide.

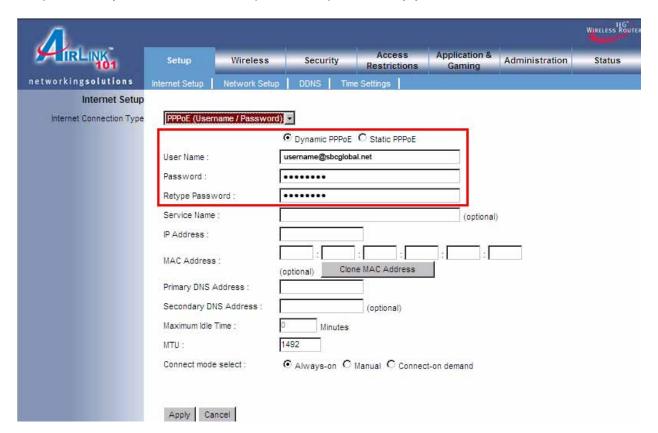
DSL

For DSL users, follow the steps below to configure the router.

Step 1 Select **PPPoE** from the drop-down menu.



Step 2 Enter your username and password provided by your ISP.



Note: Depending on the ISP, you may need to include the domain name with your username.

Example: username@sbcglobal.net

Step 3 Click **Apply** and **OK** to save the settings.

If you have trouble connecting to the Internet, please refer to the **Troubleshooting** section at the end of this manual.

5. Connecting to the Router Wirelessly

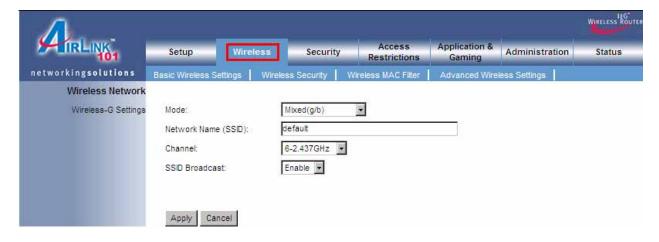
Below are the default wireless settings of the router. You must configure your wireless network card to the same settings in order to establish a wireless connection to the router. Please refer to your wireless network card's manual on how to configure these settings.

SSID: default

Operating Mode: Infrastructure Authentication: Open System

Channel #: 6 WEP: disabled

If you want to change the router's wireless settings, log in to the router and select the **Wireless** tab. Be sure to click **Apply** and **OK** to save the settings.

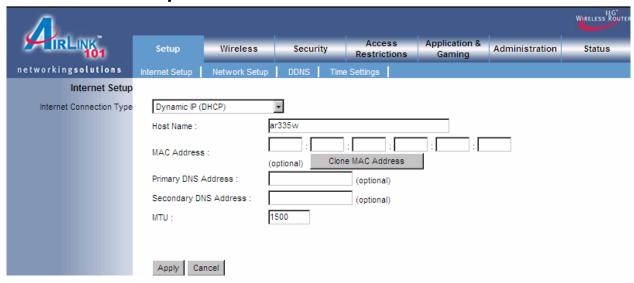


6. Web Configuration Utility

This router has a built-in web configuration utility that you can use to configure the router's settings. Simply log in to the router using your computer's web browser.

6.1 Setup

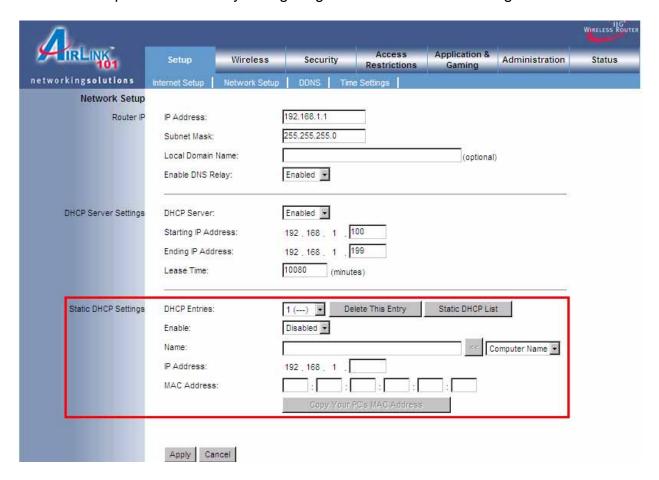
6.1.1 Internet Setup



This is the default screen when you log in to the router's web configuration utility. You can setup your Internet connection here.

6.1.2 Network Setup

Network Setup allows manually configuring TCP/IP and DHCP settings.



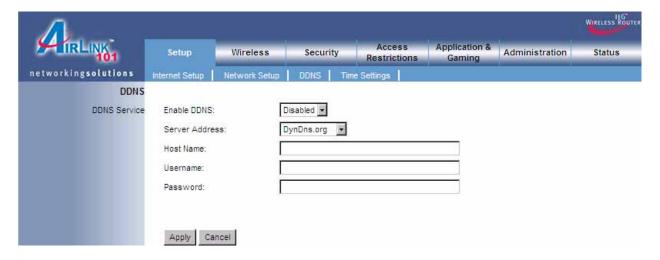
Assigning Static DHCP Settings

- Step 1 Select Enabled in the DHCP Server drop-down menu
- **Step 2** Select a computer name from the drop-down menu or enter a name associated with this Static IP Address
- Step 3 Enter the Static IP Address in the IP Address field
- **Step 4** Enter the MAC address of the corresponding computer in the **MAC Address** field

Remember to click **Apply** and **OK** to save your changes.

6.1.3 DDNS

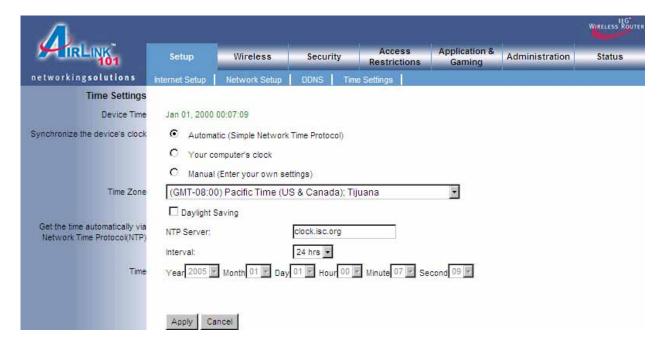
Dynamic DNS (DDNS) allows any user who wishes to access your server to reach it by a registered DNS name instead of an IP address. Before you enable **DDNS**, you need to register an account with one of the DDNS providers listed in the drop-down menu.



To Enable DDNS, select the DDNS provider you have registered with and enter the required fields. Click **Apply** and **OK** to save the setting.

6.1.4 Time Settings

Time Settings allow you to configure the router clock.



6.2. Wireless

6.2.1 Basic Wireless Settings

You can configure the router's basic wireless settings on this screen.



Mode: Choose from Mixed (g/b), Wireless-11g Only, Wireless 11b Only, or Disabled to stop wireless function.

Network Name (SSID): You can change the router's SSID in this field. Once you have changed the SSID, your network clients need to re-connect themselves using the new SSID.

Channel: Select the desired channel. All the network clients need to be using the same channel.

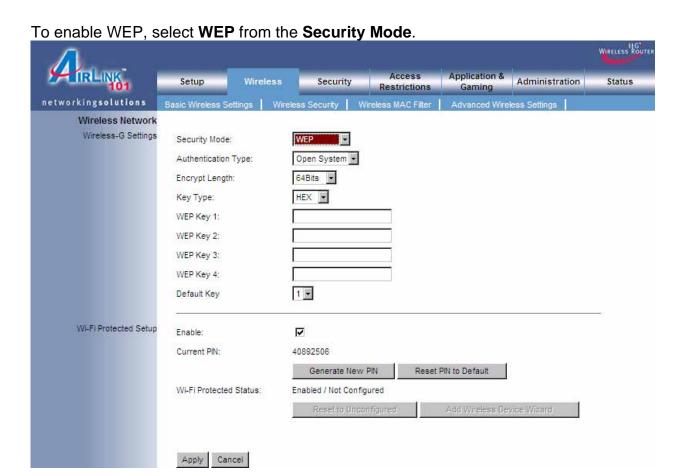
SSID Broadcast: Choose to enable or disable the broadcasting of your SSID.

6.2.2 Wireless Security

You can configure wireless security such as WEP or WPA encryption on this screen.

Note: It is recommended that you use WPA-PSK or WPA2-PSK encryption over WEP if your wireless clients support it. All of the wireless clients must use the same security settings in order to connect to the router.

WEP



Authentication Type: Choose Open System or Shared Key.

Encryption: Choose from 64 bits or 128 bits

Key Type: Choose HEX or ASCII

WEP Key 1 – 4: Manually assign a password for each key. If you selected **64 bits** encryption, enter **10** HEX characters (0-F) for each key. If you selected **128 bits** encryption, enter **26** HEX characters (0-F) for each key.

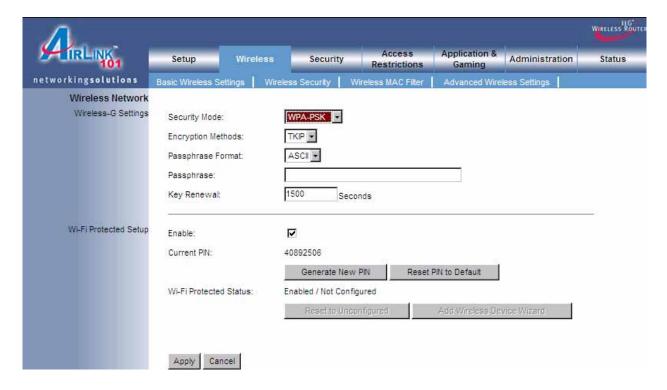
Note: HEX number is a number from 0 to 9 and a letter from A to F. ASCII is any number or letter.

Default Key: Select a key to be the active key.

Click **Apply** and **OK** to save the settings.

WPA-PSK/WP2-PSK

To enable WPA, select WPA-PSK or WPA2-PSK from the Security Mode.



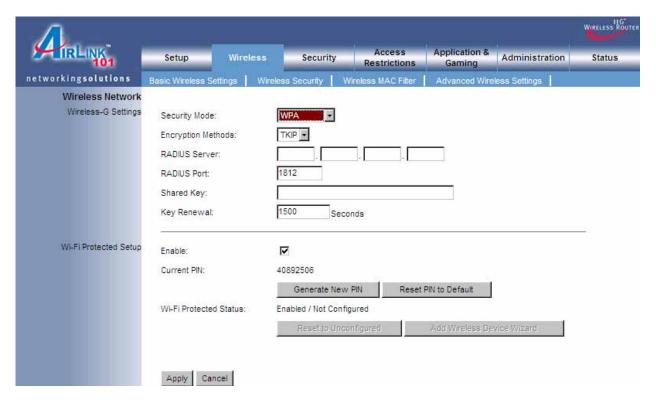
Encryption Methods: Select either **TKIP** or **AES** as the encryption method.

Passphrase: Enter a passphrase between 8 to 63 characters long.

Key Renewal: Enter the desired key renewal time in seconds.

WPA with RADIUS

If you are using a RADIUS server in your network for authentication, you may choose **WPA** or **WPA2** from the **Security Mode**.



Encryption Methods: Select either **TKIP** or **AES** as the encryption method.

RADIUS Server: Enter the IP Address of your RADIUS server.

RADIUS Port: Enter the port number of your RADIUS server.

Shared Key: Enter the shared key.

Key Renewal: Enter the desired key renewal time in seconds.

Click **Apply** and **OK** to save the settings.

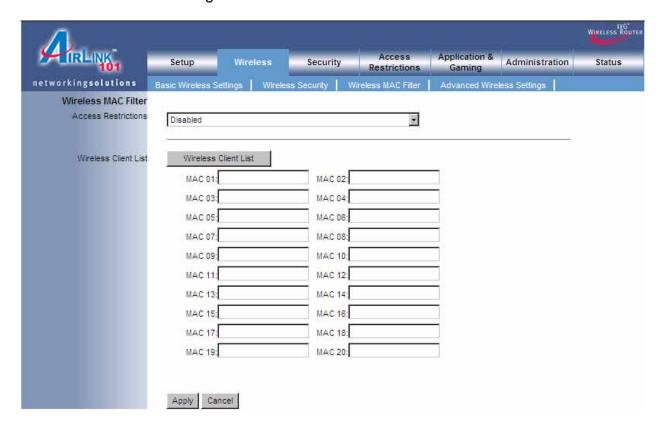
WiFi Protected Setup

This is an easier way to setup the wireless security for all your wireless clients. This security feature only works when your wireless adapter supports this WPS PIN feature. You will have to enter the **Current PIN** at your wireless client side to connect to this router.

Check/Uncheck the **Enable** box to enable or disable this function

6.2.3 Wireless MAC Filter

You can restrict certain wireless clients from accessing the router by specifying their MAC address and enabling access restriction.



Select **Enabled** from the drop-down menu and choose whether the specified wireless clients will be prevented or permitted to access the wireless network. Enter their MAC address in the fields below and click **Apply** and **OK** to save the settings.

6.2.4 Advanced Wireless Settings

WIRELESS KOUTE Setup Administration Security Status Restrictions networkingsolutions **Advanced Wireless Settings** Auto Transmission Rate: Full • Transmission Power: Disable -CTS Protection Mode: 100 Beacon Interval: (Default: 100 Millseconds, Range: 0 ~ 2346) (Default: 1, Range: 1 ~ 255) DTIM Interval: 2346 Fragmentation Threshold: (Default: 2346, Range: 256 ~ 2346, even) 2346 (Default: 2346, Range: 0 ~ 2346) RTS Threshold: Disable ¥ WMM function:

You can configure various advanced wireless settings on this screen.

Transmission Rate: Select from Auto, 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48 and 54 Mbps.

Transmission Power: Select from full, half, quarter, eighth, min.

CTS Protection Mode: Select from disable, enable, auto.

Apply Cancel

Beacon Interval: Enter a value from the valid range of 0 to 2346. The default value is 100 Milliseconds

DTIM Interval: Enter a value from the valid range of 0 to 255. The default value is 1.

Fragmentation Threshold: Enter an even number from 256 to 2346. The default value is 2346.

RTS Threshold: Enter a value from the valid range of 0 to 2346. The default value is 2346.

WMM Function: WMM keeps the priority of audio, video and voice applications in a Wi-Fi network so that other applications or network traffic (i.e. downloading large files) are less likely to cause delay to them.

Select disable or enable the WMM function.

6.3 Security

6.3.1 Firewall



Block WAN Ping: Enable or Disable.

SPI Mode: Select to enable or disable Stateful Packet Inspection.

Click **Apply** and **OK** to save the settings.

6.3.2 VPN Passthrough

You can select to enable or disable the passthrough of IPSec, L2TP, and/or PPTP.

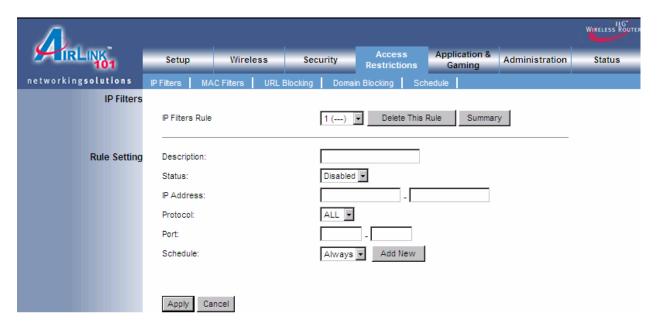


6.4 Access Restrictions

You can setup policies that deny or allow specific clients to access the Internet based on IP address, MAC address, URL, Domain or a specified time.

6.4.1 IP Filters

Set up router filter policies based on IP addresses.



Description: Enter a name for the policy.

Status: Choose to enable or disable the selected policy.

IP Addresses: Specify client by a range of IP addresses

Protocol: Select protocol from All, TCP, UDP or ICMP

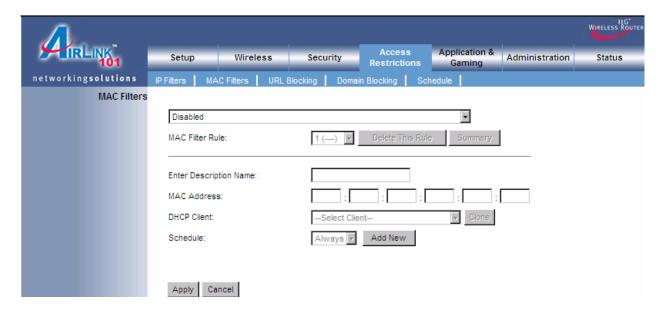
Port: Enter a range of ports.

Schedule: Enter a schedule time

To view all the policies, click the **Summary** button.

6.4.2 MAC Filters

Setup policies that deny or allow specific clients to access the Internet based on MAC addresses.



Enter Description Name: Enter a name for the policy.

MAC Address: Enter a MAC address

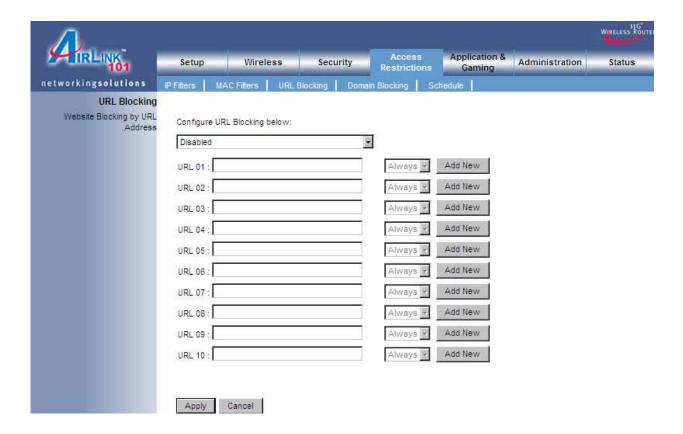
DHCP Client: Select DHCP client on your network.

To view all the policies, click the **Summary** button.

6.4.3 URL Blocking

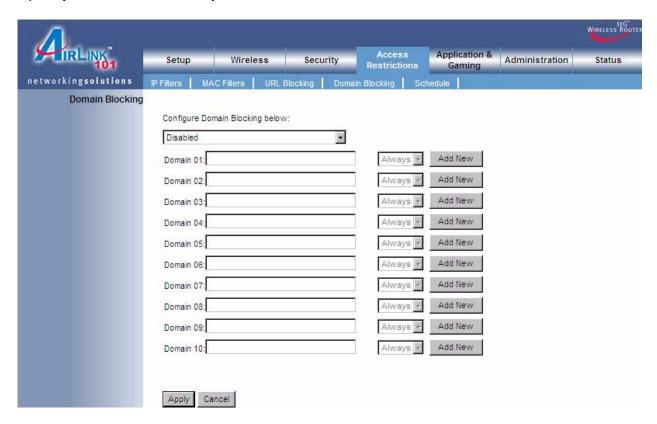
You can block the specified clients from accessing certain websites by URL

Enter the URL or the Keyword you wish to block.



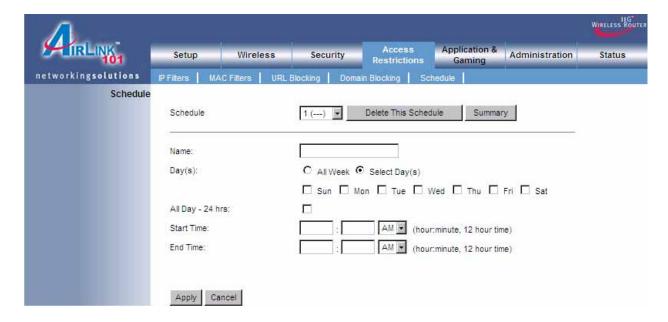
6.4.4 Domain Blocking

Specify the domains to deny or allow internet access.



6.4.5 Schedule

Select a time range in which the specified clients can access the Internet by **Day** and **Time**.

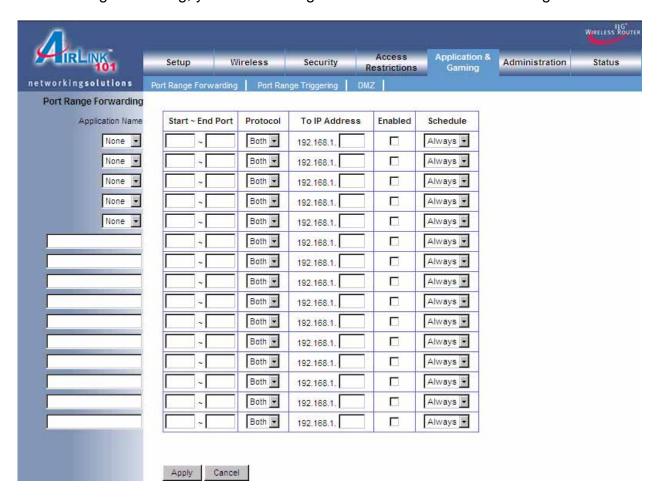


6.5 Applications & Gaming

6.5.1 Port Range Forwarding

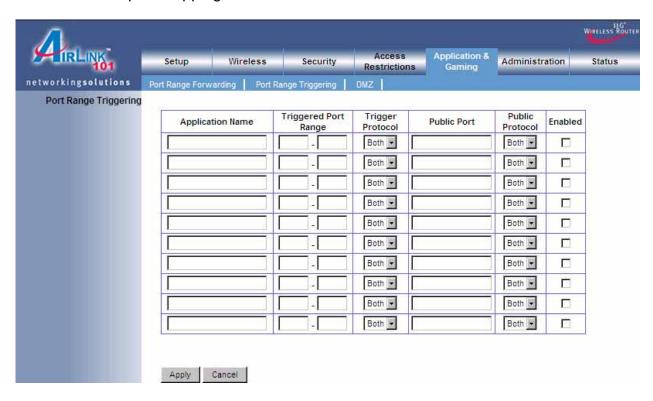
If you want to host a FTP server or online gaming, you must open up ports on the router. This page allows you to setup port forwarding for the specified applications.

Before using forwarding, you should assign static IP addresses to the designated PCs.



6.5.2 Port Range Triggering

Port triggering allows the router to keep track of outgoing data for specific port numbers. The router remembers which computer sends out what data, so when the requested data returns through the router, the data is sent back to the proper computer by way of IP address and port mapping rules.



6.5.3 DMZ

DMZ (De-Militarized Zone) Host is a host without the protection of the router's firewall. It allows a computer to be exposed to unrestricted two-way communication with the Internet. You should only use this feature when the Port Forwarding function fails to make an application work.

Warning: Setting your computer as a DMZ host exposes it to various security vulnerabilities. This feature should be used only when needed.



DMZ: Select to enable or disable DMZ.

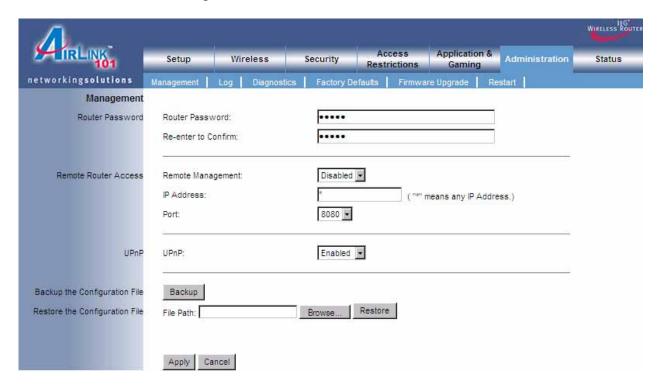
Host IP Address: Specify the host IP address.

Note: Any DMZ host should have a new static IP address assigned to it because its IP address may change when using the DHCP function.

6.6 Administration

6.6.1 Management

The Management screen allows you to change the router's login password as well as other administrative settings.



Router Password: Set the router's login password.

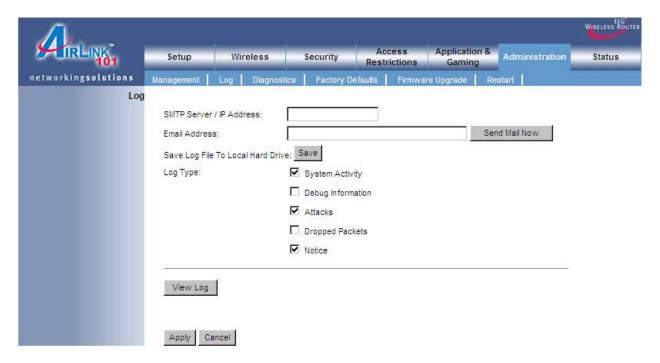
Remote Router Access: Select to enable or disable remote management/upgrade of the router. You can allow remote management from any IP Address or a specified IP Address as well as the port number.

UPnP: Universal Plug and Play (UPnP) allows Windows Me and XP to automatically configure the router for various Internet applications, such as gaming and videoconferencing.

Backup and Restore: You can choose to backup the router's settings so that you don't have to manually configure the settings again if you reset the router to factory default.

6.6.2 Log

You can choose to enable or disable logging of your network activity on this screen.



Email Address: Specify an email address to send the log file.

Send Mail Now: Send the log file to the specified the email address.

Save Log File to Local Hard Drive: Take the log in router memory and store it into a log file.

Log Type: Specify the information you want to capture. They include System Activity, Debug Information, Attacks, Dropped Packets, and Notice.

View Log: Allow you to see logged information related to System Activity, Debug Information, Attacks, Dropped Packets, and Notice.

6.6.3 Diagnostics

The Diagnostics screen allows you to perform Ping tests.



Ping Test: Enter the IP or URL Address you wish to ping and click Ping.

6.6.4 Factory Defaults

The Factory Defaults screen allows you to set all the router's settings to the factory default.



Click on the Factory Defaults button to restore all the settings to default.

6.6.5 Firmware Upgrade

The Firmware Upgrade screen allows you to upgrade the router's firmware.



You may download the updated firmware from the Airlink101 website www.airlink101.com

Click on **Browse** to browse to the new firmware, and click **Apply**.

Note: Do not power off the router during the firmware upgrading, otherwise your router may be damaged permanently. Do not upgrade firmware from a wireless computer.

6.6.6 Restart

The Restart page allows you to restart the router without restoring the settings to factory default.

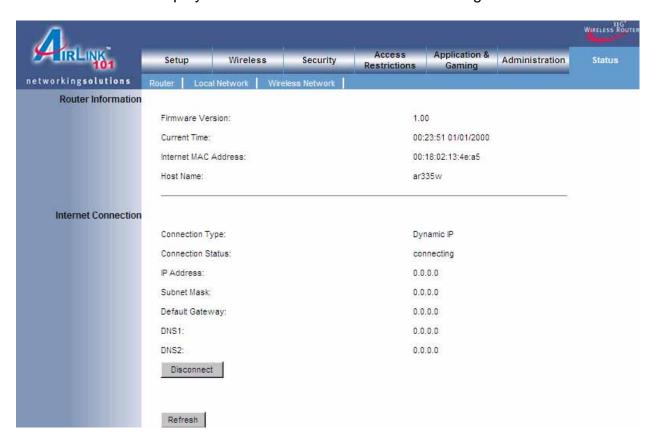


Click on the **Restart** button to restart the router.

6.7 Status

6.7.1 Router

The Router screen displays the router status information including the firmware version.



Click on the Refresh button to reload the screen.

6.7.2 Local Network

The Local Network screen displays the local area network status information.



Click on the **DHCP Client Table** to display a list of DHCP clients in your network.

6.7.3 Wireless Network

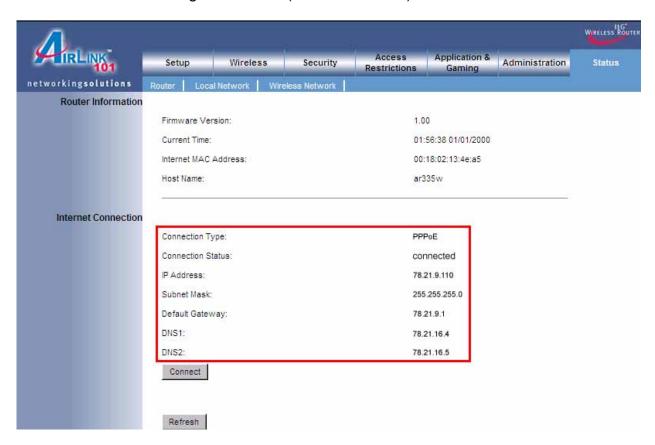
The Wireless Network screen displays the wireless network status information.



7. Troubleshooting

If you have trouble connecting to the Internet, try the following steps.

- Step 1 Power off the Cable/DSL modem, router, and computer and wait for 5 minutes.
- **Step 2** Turn on the Cable/DSL modem and wait for the lights on the modem to settle down.
- **Step 3** Turn on the router and wait for the lights on the router to settle down.
- Step 4 Turn on the computer.
- **Step 5** Reconfigure the router as described in **Section 3**.
- **Step 6** Log in to the router and select the **Status** tab.
- **Step 7** Verify that the **IP Address**, **Default Gateway**, and at least one of the **DNS** fields have valid numbers assigned to them (instead of all 0's).



If each field has a valid number assigned, the router is connected to the Internet.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from thatto which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Statement

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions:

- 1) this device may not cause interference and
- 2) this device must accept any interference, including interference that may cause undesired operation of the device

This device has been designed to operate with an antenna having a maximum gain of 2dBi.

Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the EIRP is not more than required for successful communication.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Technical Support

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Toll Free: 1-888-746-3238

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^{*}Theoretical maximum wireless signal rate based on IEEE standard 802.11g specifications. Actual data throughput will vary. Network conditions and environmental factors, including volume of network traffic, building materials and construction, mix of wireless products used, radio frequency interference (e.g., cordless telephones and microwaves) as well as network overhead lower actual data throughput rate.